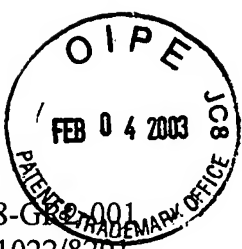


CLAIMS

1. An array of photodiodes made of regions of a second conductivity type formed in a semiconductive region of a first conductivity type, divided into three interleaved sub-arrays, all the photodiodes of a same sub-array being coated with a same interference filter including at least one
5 insulating layer of determined thickness coated with at least one conductive layer, wherein said conductive layers are electrically connected to the semiconductive region of a first conductivity type.
2. The array of photodiodes of claim 1, wherein the electric connection is indirect.
- 10 3. The array of photodiodes of claim 1, wherein the semiconductor substrate is a single-crystal silicon substrate, and the interference filter includes a silicon oxide layer formed above the substrate and a conductive polysilicon layer formed above the silicon oxide layer.



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CLAIMS AS CURRENTLY PENDING
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1. (Amended) An array of photodiodes made of regions of a second conductivity type formed in a semiconductive region of a first conductivity type, divided into three interleaved sub-arrays, all photodiodes of a same sub-array being coated with a same interference filter including at least one insulating layer of determined thickness coated with at least one conductive layer, wherein said at least one conductive layer is electrically connected to the semiconductive region of the first conductivity type.

2. The array of photodiodes of claim 1, wherein the electric connection is indirect.

3. The array of photodiodes of claim 1, wherein the semiconductor substrate is a single-crystal silicon substrate, and the interference filter includes a silicon oxide layer formed above the substrate and a conductive polysilicon layer formed above the silicon oxide layer.

4. (Amended) The array of photodiodes of claim 1, wherein the semiconductive region of the first conductivity type comprises a semiconductor substrate made of single-crystal silicon.

5. The array of photodiodes of claim 1, wherein said at least one insulating layer comprises a silicon oxide layer.

6. The array of photodiodes of claim 1, wherein said conductive layer comprises a polysilicon layer.

7. The array of photodiodes of claim 1, further comprising a silicon nitride layer over said conductive layer.

8. (Amended) The array of photodiodes of claim 1, wherein said semiconductive region of the first conductivity type comprises a semiconductor substrate made of single-crystal silicon,

said at least one insulating layer comprises a silicon oxide layer, and said conductive layer comprises a polysilicon layer.

9. The array of photodiodes of claim 8, further comprising a silicon nitride layer over said conductive layer.

10. (Amended) The array of photodiodes of claim 9, wherein said single-crystal silicon layer and said polysilicon layer have a high refraction coefficient on the order of 4, while said silicon oxide layer and silicon nitride layer have a lower refraction coefficient, on the order of 1.5.

11. (Amended) The array of photodiodes of claim 1, wherein said conductive layer is connected to said semiconductive region of the first conductivity type at a heavily doped P-type region thereof.

12. (Amended) A photodiode comprising:
a semiconductor substrate of a first conductivity type;
a semiconductive region of a second conductivity type formed in said semiconductor substrate;
a multilayer interference filter disposed over said semiconductive region and including;
at least one insulating layer of predetermined thickness, and
a conductive layer disposed over said at least one insulating layer,
wherein said conductive layer includes a conductive portion that electrically connects said conductive layer to said semiconductor substrate of the first conductivity type.

13. The photodiode of claim 12, wherein said semiconductor substrate comprises a single-crystal silicon.

14. The photodiode of claim 13, wherein said at least one said insulating layer comprises a silicon oxide layer.

15. The photodiode of claim 14, wherein said conductive layer comprises a polysilicon layer.

16. The photodiode of claim 15, further comprising a silicon nitride layer over said conductive layer.

17. (Amended) A photodiode comprising:
a semiconductor substrate of a first conductivity type;
a semiconductive region of a second conductivity type formed in said semiconductor substrate;
a multilayer interference filter disposed over said semiconductive region and including;
at least one insulating layer of predetermined thickness, and
a conductive layer disposed over said at least one insulating layer,
means defining a conductive portion that electrically connects said conductive layer to said semiconductor substrate of the first conductivity type.

18. The photodiode of claim 17, further including means defining a heavily doped region of said semiconductor substrate to which said conductive portion couples.

19. (Amended) A photodiode circuit comprising:
a photodiode having a cathode;
a precharge transistor having a gate, a source, and a drain; and
an amplifying transistor having a gate and a source;
wherein the cathode of said photodiode is coupled to the source of said precharge transistor, the drain of said precharge transistor is connected to receive a reference voltage, and the gate of said precharge transistor is connected to a row line capable of selecting all precharge transistors of a same row; and
wherein the gate of the amplifying transistor is connected to the cathode of said photodiode and the source of the amplifying transistor is connected to a column line.

20. (CANCELED) A method for forming oxide layers over three groups of cathode regions, comprising the steps of:

depositing a first silicon oxide layer over a substrate and etching the layer to maintain it in place above a first region;

depositing and etching a second silicon oxide layer to leave it in place above first and second regions; and

depositing a third silicon oxide layer over all three said regions.

21. (CANCELED) The method of claim 20, further depositing a polysilicon layer over the third silicon oxide layer.

22. (CANCELED) The method of claim 20, wherein the first silicon oxide layer has a thickness on the order of 40 nm, the second silicon oxide layer has a thickness on the order of 40 nm and the third silicon oxide layer has a thickness on the order of 150 nm.

23. (CANCELED) A method of forming a pixel of an image sensor comprising the steps of:

providing a silicon substrate;

defining a precharge transistor and a diode in the silicon substrate;

forming a drain region of the transistor and a source region of the transistor in the substrate;

the source region extending to form the cathode region of the diode, the anode of which corresponds to the substrate;

forming an insulated gate between the drain and source of the transistor;

providing an insulating layer over the source region; and

providing a conductive layer over the insulating layer.

24. (CANCELED) The method of claim 23, wherein the substrate is a P-type single-crystal silicon substrate, the drain region is of N-type and the source region is of N-type.

25. (CANCELED) The method of claim 23, wherein said cathode region forms one piece with a metallization connected to the gate of the transistor.

26. (CANCELED) The method of claim 23, further including forming a conductive portion that interconnects the conductive layer to the substrate.

27. (Amended) A photodiode comprising:
a semiconductor substrate of a first conductivity type;
a semiconductive region of a second conductivity type formed in said semiconductor substrate;
a multilayer interference filter disposed over said semiconductive region and including;
at least one insulating layer of predetermined thickness, and
a conductive layer disposed over said at least one insulating layer,
said semiconductor substrate defining a well formed in a base substrate of the second conductivity type, said conductive layer being connected to said base substrate.

28. (New) The array of photodiodes of claim 1, wherein the at least one insulating layer includes a first insulating layer and a second insulating layer disposed below the first insulating layer, the first insulating layer extending across all the photodiodes of the same sub-array, and the second insulating layer extending across at least two photodiodes of the same sub-array, wherein said at least one conductive layer extends across all the photodiodes of the same sub-array above the first insulating layer.

29. (New) The array of photodiodes of claim 28, wherein the at least one insulating layer further includes a third insulating layer, disposed below the second insulating layer, that extends only across a single photodiode of the same sub-array.

30. (New) The array of photodiodes of claim 1, wherein each sub-array includes a plurality of respective photodiodes, and wherein the determined thickness of the at least one insulating layer above each respective photodiode of the same sub-array has a different thickness to interferentially filter a different wavelength of light.